

WHAT IS CLAIMED IS:

1. An ADSL modem apparatus comprising:
an exchange unit that transmits and receives a REVERB signal according to one of the ITU-T standard G.992.1 and G.992.2; and
an estimation unit that estimates a communication distance to an opposing ADSL modem apparatus according to a reception level of the REVERB signal.
2. The ADSL modem apparatus according to claim 1, wherein said estimation unit estimates the communication distance to the opposing ADSL modem apparatus by comparing reception levels of two carriers, the carriers being selected from a plurality of carriers that configure the REVERB signal.
3. The ADSL modem apparatus according to claim 1, further comprising:
a communication unit that communicates by concentrating signal energy into a low frequency band, the signal energy being assigned to a transmission signal according to the communication distance estimated by said estimation unit.
4. The ADSL modem apparatus according to claim 3, wherein said communication unit minimizes the signal energy assigned to a high frequency band and increases the signal energy assigned to the low frequency band, when the communication distance to the opposing ADSL modem apparatus is increased.
5. The ADSL modem apparatus according to claim 1, wherein the ADSL modem apparatus is located at a remote side, and wherein the communication distance between the remote side ADSL modem apparatus and a center side ADSL modem apparatus is estimated.
6. The ADSL modem apparatus according to claim 1, wherein the ADSL modem apparatus is located at a center side, and wherein the communication distance between the center side ADSL modem apparatus and a remote side ADSL modem apparatus is estimated.
7. A communication method for an ADSL modem apparatus, the method comprising:

receiving a REVERB signal according to one of the ITU-T standard G.992.1 and G.992.2;

estimating a communication distance to an opposing ADSL modem apparatus according to a reception level of the REVERB signal; and

concentrating signal energy into a low frequency band, the signal energy being assigned to a transmission signal according to the estimated communication distance.

8. The communication method for an ADSL modem apparatus according to claim 7, the method further comprising:

minimizing the signal energy assigned to a high frequency band and increasing the signal energy assigned to the low frequency band, when the communication distance to the opposing ADSL modem apparatus is increased.